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2 IN THE CLAIMS  
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4 Applicant amends the Claims as follows:  
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7 4. (Amended) The method of claim 3 wherein [the modulating step],  
8 the modulation index is equal to a fraction selected from a  
9 group consisting of  $1/M$  and  $1-1/M$  fractions for the M-ary symbol  
10 set where  $M=2^k$  and k is an integer.  
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13 5. (Amended) A method for communicating a data stream, the method  
14 comprising the steps of,

15 generating a sequence of data symbols from the data stream by  
16 formatting the data stream into the sequence of formatted data  
17 pulses as a sequence of data symbols within a[n] 2-ary symbol set,  
18 precoding the sequence of data symbols into a sequence of  
19 precoded data symbols,

20 Gaussian filtering the precoded sequence of data symbols into  
21 pulse responses continuously accumulated over a finite memory time  
22 as a filter response, the Gaussian filtering is defined by a  
23 bandwidth time product inversely defining the finite memory time,

1 frequency modulating a carrier reference by the filter  
2 response by a modulation index for converting the filter response  
3 into [the] a continuous phase modulated signal,  
4 demodulating the continuous phase modulated signal by a local  
5 carrier and by a carrier phase offset into a received baseband  
6 signal, and  
7 matched filtering the received baseband signal into a filtered  
8 signal, the matched filtering is matched by pulse amplitude  
9 modulation representation to the Gaussian filtering, the filtered  
10 signal has an absolute phase at a periodic sampling time for  
11 indicating the sequence of symbols.

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13 6. (Amended) The method of claim 5, wherein,

14 the sequence of data symbols has a data symbol  $d_n$  at a current  
15 symbol time  $n$  where  $n$  is an integer and has a data symbol  $d_{n-1}$  at an  
16 immediate previous symbol time  $n-1$  for precoding the data sequence  
17 into the sequence precoded data symbols having a precoded data  
18 symbol  $\alpha_n$  at the current symbol time, the precoding step is defined  
19 by  $\alpha_n = [d_n - d_{n-1} + 1]_{\text{mod}4}$ .

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21 7. (Amended) The method of claim 5, wherein,

22 the sequence of data symbols has a data symbol  $d_n$  at a current  
23 symbol time  $n$  where  $n$  is an integer and has a data symbol  $d_{n-1}$  at an

1 immediate previous symbol time  $n-1$  for precoding the data sequence  
2 into the sequence of precoded data symbols having a precoded data  
3 symbol  $\alpha_n$  at the current symbol time for even symbol times and for  
4 odd symbol times, the precoding step is defined by  $\alpha_n = [d_n - d_{n-1}$   
5  $+ 1]_{\text{mod}4}$  for even symbol times and  $\alpha_n = -[d_n - d_{n-1} + 1]_{\text{mod}4}$  for  
6 odd symbol times.

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8 11. (Amended) A method for communicating a data stream, the method  
9 comprising the steps of,

10 generating a sequence of data symbols from the data stream by  
11 formatting the data stream into the sequence of formatted data  
12 pulses as a sequence of data symbols within a  $[n]$  4-ary symbol set,  
13 precoding the sequence of data symbols into a sequence of  
14 precoded data symbols,

15 Gaussian filtering the precoded sequence of data symbols into  
16 pulse responses continuously accumulated over a finite memory time  
17 as a filter response, the Gaussian filtering is defined by a  
18 bandwidth time product inversely defining the finite memory time,

19 frequency modulating a carrier reference by the filter  
20 response by a modulation index for converting the filter response  
21 into [the] a continuous phase modulated signal,

22 demodulating the continuous phase modulated signal by a local  
23 carrier and by a carrier phase offset into a received baseband  
24 signal, and

1 matched filtering the received baseband signal into a filtered  
2 signal, the matched filtering is matched by pulse amplitude  
3 modulation representation to the Gaussian filtering, the filtered  
4 signal has an absolute phase at a periodic sampling time for  
5 indicating the sequence of symbols.

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7 12. (Amended) The method of claim 11, wherein,

8 the sequence of data symbols has a data symbol  $d_n$  at a current  
9 symbol time  $n$  where  $n$  is an integer and has a data symbol  $d_{n-1}$  at an  
10 immediate previous symbol time  $n-1$  for precoding the data sequence  
11 into the sequence precoded data symbols having a precoded data  
12 symbol  $\alpha_n$  at the current symbol time, the precoding step is defined  
13 by  $\alpha_n = [d_n - d_{n-1} + 1]_{\text{mod}8}$ .

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15 15. (Amended) The method of claim 11, wherein,

16 the sequence of data symbols has a data symbol  $d_n$  at a current  
17 symbol time  $n$  where  $n$  is an integer and has a data symbol  $d_{n-1}$  at an  
18 immediate previous symbol time  $n-1$  for precoding the data sequence  
19 into the sequence precoded data symbols having a precoded data  
20 symbol  $\alpha_n$  at the current symbol time, the precoding step is defined  
21 by  $\alpha_n = [d_n - d_{n-1} + 3]_{\text{mod}8}$ .

1 18. (Amended) The method of claim 11 [wherein 10] wherein the  
2 filtering step is a matched filtering step for applying a principal  
3 Laurent function, a third Laurent function and a twelfth Laurent  
4 function to the baseband signal so that the filtered signal  
5 comprises a principal Laurent component, a third Laurent component  
6 and a twelfth Laurent component.

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8 AMENDED and REWRITTEN  
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10 4. (Amended and Rewritten) The method of claim 3 wherein,  
11 the modulation index is equal to a fraction selected from a  
12 group consisting of  $1/M$  and  $1-1/M$  fractions for the M-ary symbol  
13 set where  $M=2^k$  and k is an integer.

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16 5. (Amended and Rewritten) A method for communicating a data  
17 stream, the method comprising the steps of,  
18 generating a sequence of data symbols from the data stream by  
19 formatting the data stream into the sequence of formatted data  
20 pulses as a sequence of data symbols within a 2-ary symbol set,  
21 precoding the sequence of data symbols into a sequence of  
22 precoded data symbols,  
23 Gaussian filtering the precoded sequence of data symbols into  
24 pulse responses continuously accumulated over a finite memory time

1 as a filter response, the Gaussian filtering is defined by a  
2 bandwidth time product inversely defining the finite memory time,  
3 frequency modulating a carrier reference by the filter  
4 response by a modulation index for converting the filter response  
5 into a continuous phase modulated signal,  
6 demodulating the continuous phase modulated signal by a local  
7 carrier and by a carrier phase offset into a received baseband  
8 signal, and  
9 matched filtering the received baseband signal into a filtered  
10 signal, the matched filtering is matched by pulse amplitude  
11 modulation representation to the Gaussian filtering, the filtered  
12 signal has an absolute phase at a periodic sampling time for  
13 indicating the sequence of symbols.

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17 6. (Amended and Rewritten) The method of claim 5, wherein,

18 the sequence of data symbols has a data symbol  $d_n$  at a current  
19 symbol time  $n$  where  $n$  is an integer and has a data symbol  $d_{n-1}$  at an  
20 immediate previous symbol time  $n-1$  for precoding the data sequence  
21 into the sequence precoded data symbols having a precoded data  
22 symbol  $\alpha_n$  at the current symbol time, the precoding step is defined  
23 by  $\alpha_n = [d_n - d_{n-1} + 1]_{\text{mod}4}$ .

7. (Amended and Rewritten) The method of claim 5, wherein,  
the sequence of data symbols has a data symbol  $d_n$  at a current  
symbol time  $n$  where  $n$  is an integer and has a data symbol  $d_{n-1}$  at an  
immediate previous symbol time  $n-1$  for precoding the data sequence  
into the sequence of precoded data symbols having a precoded data  
symbol  $\alpha_n$  at the current symbol time for even symbol times and for  
odd symbol times, the precoding step is defined by  $\alpha_n = [d_n - d_{n-1}$   
 $+ 1]_{\text{mod}4}$  for even symbol times and  $\alpha_n = -[d_n - d_{n-1} + 1]_{\text{mod}4}$  for  
odd symbol times.

11. (Amended and Rewritten) A method for communicating a data  
stream, the method comprising the steps of,  
generating a sequence of data symbols from the data stream by  
formatting the data stream into the sequence of formatted data  
pulses as a sequence of data symbols within a  $[n]$  4-ary symbol set,  
precoding the sequence of data symbols into a sequence of  
precoded data symbols,  
Gaussian filtering the precoded sequence of data symbols into  
pulse responses continuously accumulated over a finite memory time  
as a filter response, the Gaussian filtering is defined by a  
bandwidth time product inversely defining the finite memory time,

1 frequency modulating a carrier reference by the filter  
2 response by a modulation index for converting the filter response  
3 into a continuous phase modulated signal,

4 demodulating the continuous phase modulated signal by a local  
5 carrier and by a carrier phase offset into a received baseband  
6 signal, and

7 matched filtering the received baseband signal into a filtered  
8 signal, the matched filtering is matched by pulse amplitude  
9 modulation representation to the Gaussian filtering, the filtered  
10 signal has an absolute phase at a periodic sampling time for  
11 indicating the sequence of symbols.

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13 12. (Amended and Rewritten) The method of claim 11, wherein,

14 the sequence of data symbols has a data symbol  $d_n$  at a current  
15 symbol time  $n$  where  $n$  is an integer and has a data symbol  $d_{n-1}$  at an  
16 immediate previous symbol time  $n-1$  for precoding the data sequence  
17 into the sequence precoded data symbols having a precoded data  
18 symbol  $\alpha_n$  at the current symbol time, the precoding step is defined  
19 by  $\alpha_n = [d_n - d_{n-1} + 1]_{\text{mod}8}$ .

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